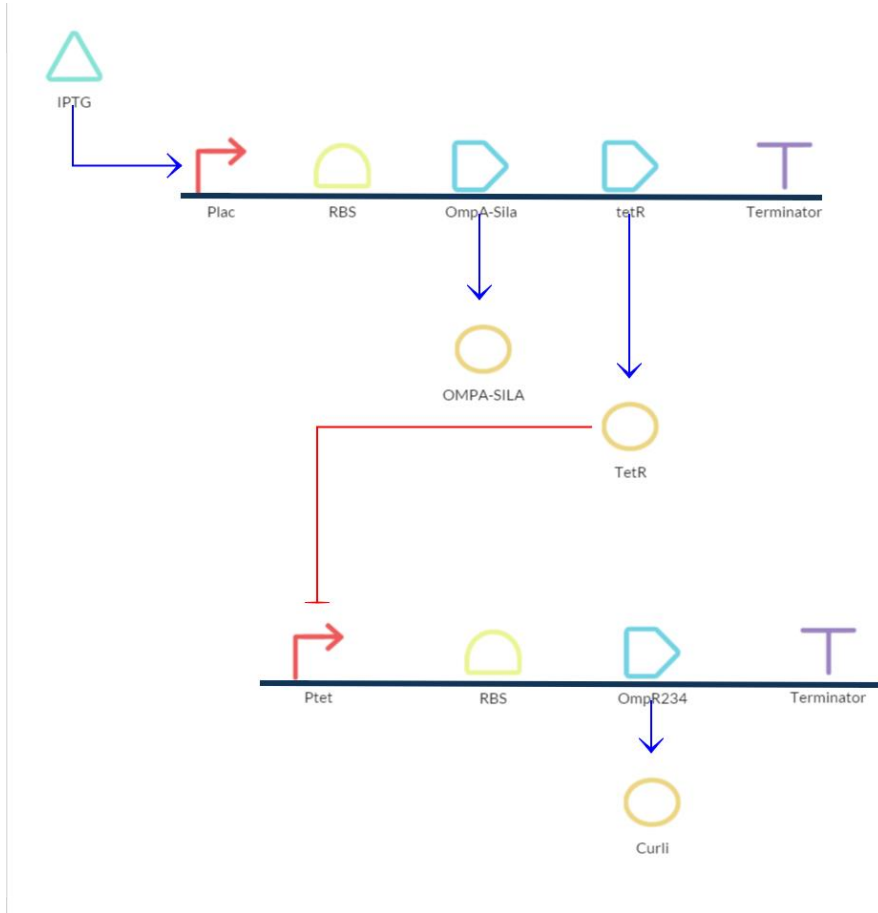


Biomaker



Formulae for two certain parts

LacI and IPTG:

$$[\text{LacI}^F] = [\text{LacI}] \frac{1}{1 + \frac{[\text{IPTG}]}{k_{\text{IPTG}}}}$$

OmpA-Silalpha and LacI:

$$\frac{d[\text{OMPA-SILA}]}{dt} = \chi_{\text{Plac}} \beta_s \frac{1}{1 + \frac{[\text{LacI}^F]}{k_I}} [\text{OmpA-Sila}] - \alpha_s [\text{OMPA-SILA}]$$

TetR and LacI:

$$\frac{d[\text{TetR}]}{dt} = \chi_{\text{Plac}} \beta_{\text{TR}} \frac{1}{1 + \frac{[\text{LacI}^F]}{k_I}} [\text{tetR}] - \alpha_{\text{TR}} [\text{TetR}]$$

OmpR234 and TetR:

$$\frac{d[\text{OmpR 234}]}{dt} = \beta_0 \chi_{\text{Ptet}} \frac{1}{1 + \frac{[\text{TetR}]}{k_{TR}}} - \alpha_0 [\text{OmpR 234}]$$

Curli and OmpR234:

$$\frac{d[\text{Curli}]}{dt} = \beta_c \frac{[\text{OmpR234}]}{k_E + [\text{OmpR 234}]} - \alpha_E [\text{Curli}]$$

Parameter Table

Parameters	Values and Units
k_IPTG	0.5(self-defined)
beta_s	1
k_I	0.5
alpha_s	0.2
beta_TR	0.8
alpha_TR	0.05
beta_0	1
k_TR	0.001
alpha_0	0.05
beta_c	2
alpha_E	0.05
k_E	0.6

Reference: <http://2012.igem.org/Team:Purdue>